PATENT SPECIFICATION (11) 1 237 063

DRAWINGS ATTACHED

1 237 063

(21) Application No. 1014/69 (22) Filed 7 Jan. 1969
(23) Complete Specification filed 14 Oct. 1969
(45) Complete Specification published 30 June 1971
(51) International Classification F 16 b 37/04
(52) Index at acceptance
F2H 17A4
E2B 13FU

(72) Inventors ARTHUR STANLEY PEARSON
DAVID JULIAN FORD
ARTHUR GERALD ORRIDGE

(54) NUT FOR ASSEMBLY IN AN APERTURED SUPPORT

(71) We, CARR FASTENER COMPANY LIMITED, a British Company of Nottingham Road, Stapleford, Nottinghamshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a nut for assembly in an apertured support.

It is an object of the invention to provide a nut having means for engaging opposite faces of the support to retain it in assembly in a non-rotatable manner.

According to the invention, the nut is formed of synthetic plastics comprising an internally screw threaded barrel formed with a radial flange at one end, the outer surface of the barrel being provided with cam surfaces in spaced relation to the flange, the flange being formed with segments capable of flexing movement relative to the remainder of the flange and parts of the segments projecting from the plane of the flange towards the barrel, the nut being thus adapted to be assembled with a support having an aperture and slots extending laterally therefrom, the barrel being insertable through the aperture and the nut when thus assembled being adapted to be rotated into a position wherein the cam surfaces and adjacent portions of the flange engage opposite faces of portions of the support adjacent the aperture and the projecting portions of the segments engage in the said lateral slots to prevent rotation of the nut.

To enable the invention to be fully understood, it will now be described, by way of example, with reference to the drawings accompanying the Provisional Specification in which:—

Figure 1 is a side elevation of a nut according to one embodiment of the invention;

Figure 2 is a plan view thereof;

Figure 3 is a sectional side view;

Figure 4 is a perspective view on an enlarged scale;

Figure 5 is a side view, partly in section, of the nut assembled with an apertured support, the figure being on a smaller scale to that of Figure 1; and

Figure 6 is a plan view of a support illustrating a suitable form of aperture for receiving the nut.

As illustrated in the drawings, the nut comprises a one-piece moulding of synthetic plastics including a barrel 1 formed at one end with a radial flange 2. The barrel is internally screw threaded as indicated by 3, and its outer surface has axially extending ribs 4 at oppositely disposed portions of the peripheral surface of the barrel.

Each of the ribs has a cam-shaped portion 5 at the end facing the flange and spaced axially thereof.

At two diametrically opposed portions of the flange is formed a segment 6, the side edges of each of which are separated from the adjacent portions of the flange so that the segments are capable of flexing movement relative to the flange. Each segment includes an inner narrow web portion connected with the barrel and an outer portion of increased thickness to the web and including a nose 7 extending outwardly of the plane of the under surface of the flange towards the barrel 1.

The surface of the flange remote from the barrel is provided with slots 8 for receiving a screwdriver or other suitable tool for rotating the nut when assembled with a support.

The nut is adapted to be assembled with a support such as *a* (Figure 6) formed with a circular shaped aperture *b* of a diameter slightly greater than that of the barrel 1 and slots *c* extending in opposed relation from the aperture.

The nut is assembled by inserting the

barrel into the aperture *b* with the ribs aligned with the slots *c*, and the nut is then moved axially through the aperture until the noses 7 of the segments 6 abut the adjacent face of the support. Pressure is then exerted by means of a tool such as a screwdriver engaging in the slots 8 to move the barrel further into the aperture until the portions of the flange on each side of the segments 6 abut the adjacent outer face of the support. It will be understood that the segments 6 will flex to permit this movement.

The nut is then rotated by means of a screwdriver through 90° and the cam surfaces 5 on the ends of the ribs 4 will engage and ride over the under face of the support and the nose pieces 7 of the segments will engage and ride over the outer face of the support.

When this rotational movement has been completed, the noses 7 of the segments will be aligned with the slots *c* and will snap into them to prevent further rotational movement of the nut. The nut device will be firmly secured in assembly with the support as portions thereof adjacent the aperture and slots will be sandwiched between portions of the flange and the cam surfaces 5 of the ribs. The cam surfaces 5 will, when the nut is rotated, serve to ensure a firm grip with the under face of the support.

A co-operating fastener such as a screw or screw threaded bolt is adapted to be screwed into the hollow barrel. The screw or bolt may, in one application of the invention, serve as a means of levelling an article attached to the support *a*. For example, the support may comprise the base of a domestic Refrigerator or like article which needs to be levelled with respect to the floor or like surface on which it stands and the screw or bolt would serve as a foot which by screwing inwardly or outwardly of the barrel will form a means of levelling the article.

It will be understood, however, that the nut with a co-operating screw or screw threaded bolt may be used for other purposes, for example, securing articles to the support.

If desired, the internal screw thread 3 may be moulded slightly undersize in relation to the thread of the screw or bolt to be assembled with the barrel so that when screwed into the barrel it makes a friction lock.

To facilitate the moulding of the nut, the flange is formed with openings 9 (Figs. 2 and 4) adjacent each of the ribs 4 and formers on the moulding tool are adapted to extend into these openings in effecting the moulding operation.

WHAT WE CLAIM IS:—

1. A nut for assembly in an apertured support, the nut being formed of synthetic plastics comprising an internally screw threaded barrel formed with a radial flange at one end, the outer surface of the barrel being provided with cam surfaces in spaced relation to the flange, the flange being formed with segments capable of flexing movement relative to the remainder of the flange and parts of the segments projecting from the plane of the flange towards the barrel, the nut being thus adapted to be assembled with a support having an aperture and slots extending laterally therefrom, the barrel being insertable through the aperture and the nut when thus assembled being adapted to be rotated into a position wherein the cam surfaces and adjacent portions of the flange engage opposite faces of portions of the support adjacent the aperture and slots and the projecting portions of the segments engage in the said lateral slots to prevent rotation of the nut.

2. A nut according to Claim 1, wherein the outer surface of the barrel is formed with axially extending ribs, the cam surfaces being formed on the ends of the ribs adjacent to the flange.

3. A nut according to Claim 2, wherein a rib is provided at two diametrically opposed portions of the outer surface of the barrel and resilient segments are provided at locations on the flange equidistant from adjacent ribs.

4. A nut according to any one of the preceding claims, wherein the resilient segments comprise inner narrow web portions connected with the barrel and outer portions of increased thickness to the web and including a nose extending outwardly of the plane of the flange towards the barrel.

5. A nut according to any one of the preceding claims, wherein the flange is formed with a transverse slot for receiving a screwdriver or other tool for rotating the nut when assembled in the aperture in the support.

6. A nut for assembly in an apertured support substantially as described, with reference to the drawings accompanying the Provisional Specification.

ABEL & IMRAY,

Northumberland House,

303-306 High Holborn,

London, W.C.2.

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1971.
Published at the Patent Office, 25 Southampton Buildings, London WC2A 1AY from which copies may be obtained.

1,237,063
1 SHEET

PROVISIONAL SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale.

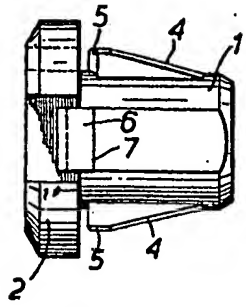

FIG. 1.

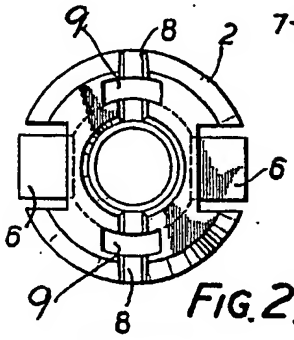

FIG. 2.

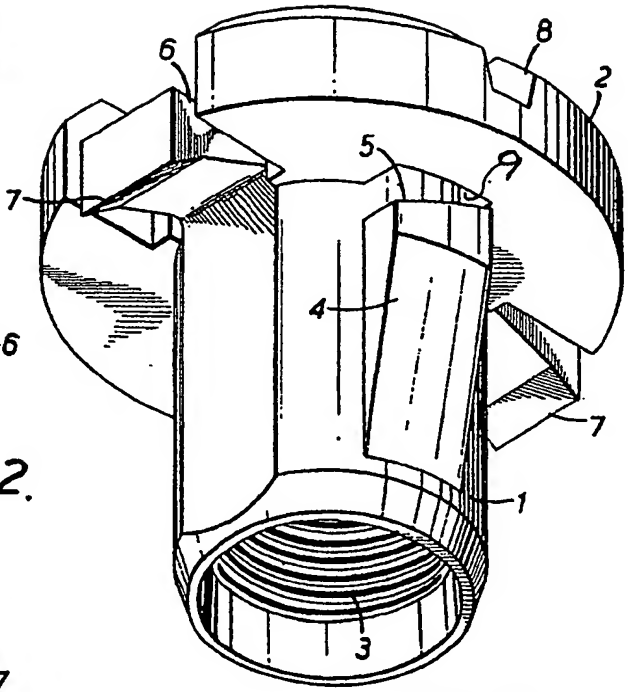

FIG. 4.

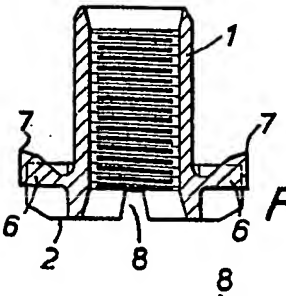

FIG. 3.

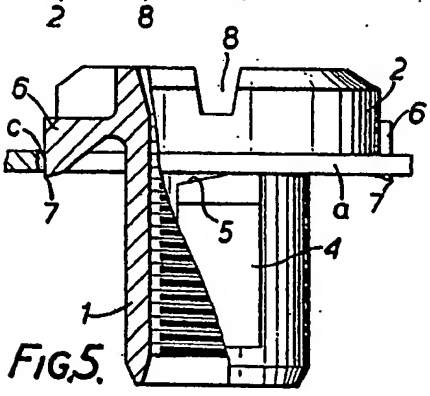

FIG. 5.

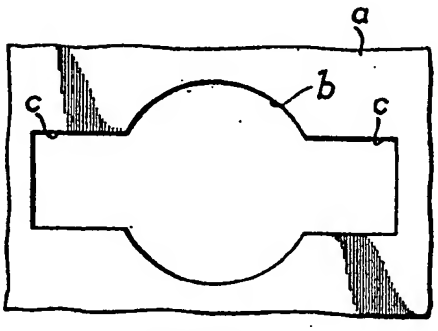

FIG. 6.